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NAVFAC **IGS-02860 (MAY 2002)**

Preparing Activity: LANTNAVFACENGCOM **Based on UFGS-02860N**

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only

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SECTION 02860

PLAYGROUND EQUIPMENT

05/02

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NOTE: This guide specification is issued by the Atlantic Division, Naval Facilities Engineering Command for regional use in Italy.

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NOTE: This guide specification is written from the ARMY Specification 02882, "Playground Equipment". Drawings should indicate playground equipment layout. Drawings will indicate the perimeters of the play event use zone defining fall height, platform height and maximum equipment height; spot elevations and details as required to install protective surfacing to meet child safety requirements.

Accessibility: Drawings will indicate spot elevations; dimensions; ramp slope and rise; transfer platform height and transfer space; transfer step and height; and maneuvering space as required to install play events to meet child accessibility requirements.

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Comments and suggestion on this specification are welcome and should be directed to the technical proponent of the specification. A listing of the technical proponents, including their organization designation and telephone number, is on the Internet.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ITALIAN LAW

Law No. 70	(24 Jan. 1994) Environment Audit

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 135	(1997) Electric-Resistance-Welded Steel Pipe
ASTM A 153	(1995) Zinc Coatings (Hot-Dip) on Iron and Steel Hardware
ASTM A 385	(1980; R 1991) Providing High-Quality Zinc Coatings (Hot-Dip)
ASTM A 500	(1996) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A 569/A 569M	(1991; Rev. A, R 1993) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled and Strip Commercial Quality
ASTM A 513	(1997) Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing
ASTM B 117	(1997) Operating Salt Spray (Fog) Apparatus
ASTM B 221	(1996) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
ASTM D 822	(1996) Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon Arc Light and Water Exposure Apparatus
ASTM D 1248	(1984; R 1989) Polyethylene Plastics Molding and Extrusion Materials
ASTM D 1735	(1992) Testing Water Resistance of Coatings Using Water Fog Apparatus
ASTM D 2454	(1995) Determining the Effect of Over-baking on Organic Coatings

ASTM D 2794	(1993) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 3359	(1995a) Measuring Adhesion by Tape Test
ASTM D 3363	(1992a) Film Hardness by Pencil Test
ASTM F 1292	(1993) Impact Attenuation of Surface Systems Under and Around Playground Equipment
ASTM F 1487	(1997c) Playground Equipment for Public Use

FEDERAL SPECIFICATIONS (FS)

FS L-P-390	(Rev C; Am 2, Notice 1) Plastic, Molding and Extrusion Material Polyethylene and Copolymers (Low, Medium and High Density)
FS QQ-A-200/8	(Rev E; Am 1, Notice 1) Aluminum Alloy 6061, Bar, Rod, Shapes, Tubes, and Wire Extruded

U.S. CONSUMER PRODUCT SAFETY COMMISSION (USCPSC)

USCPSC-01	(1994) A Handbook for Public Playground Safety Vol. II: Technical Guidelines for Equipment and Surfacing

AIR FORCE REGULATIONS

A.A.B.D.S.	Aviano Air Base Design Standards

1.2 DEFINITIONS

Age-Appropriate: A term that describes equipment scale to include platform height, fall height and maximum equipment height, that allows safe and successful use by children of a specific chronological age; mental and physical ability; and anthropometric measurement. Maximum equipment height and complexity will not exceed a child's ability in that age group.

Composite Structure: Also "Composite Play Structure; Linked Structure". Two or more play events attached, directly adjacent or functionally linked, to create one integral unit that provides more than one play activity.

Designated Play Surface: Any elevated surface for standing, walking, sitting, or climbing; or a flat surface a minimum 50 mm 2 inches wide having up to a maximum 30 degree angle from horizontal. In some play events the platform surface will be the same as the designated play surface. However, the terms should not be interchanged as they do not define the same point of measurement per ASTM F 1487.

Maximum Equipment Height: The highest point on the equipment (i.e., roof ridge, top of support pole).

Play Event: A piece of manufactured playground equipment that supports one or more play activities.

Protective Surfacing: Material to be used within the use zone that meets the fall attenuation requirements of Section 02535, "Playground Safety Surfacing."

Suspended Hazard: Cable, wire, rope or similar devices suspended up to a maximum 2100 mm 7 feet high between play events; or installed up to a maximum 45 degree angle from the ground to the play event.

Tot: A child under 4 years of age in the pre-toddler and toddler age group.

1.3 CHILD SAFETY AND ACCESSIBILITY STANDARDS

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NOTE: Drawings will indicate the perimeters of the play event use zone defining fall height, platform height and maximum equipment height; spot elevations and details as required to install protective surfacing to meet child safety requirements.

Accessibility: Drawings will indicate spot elevations; dimensions; ramp slope and rise; transfer platform height and transfer space; transfer step and height; and maneuvering space as required to install play events to meet child accessibility requirements.

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1.3.1 Child Safety

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NOTE: Specify playground equipment in accordance with ASTM F 1487.

Playground Areas Other Than Child Development Centers (CDC): TM 5-803-11, Children's Outdoor Play Areas, provides guidance for the age groups defined in paragraph AGE GROUPS concerning design of outdoor play areas for children. The manual describes the differences between unsupervised play areas such as family housing areas and supervised play areas such as child development centers. Site selection and analysis; user needs analysis; play area committee; age group criteria; play activities; play area relationships; child safety requirements; playground equipment; protective surfacing; and exterior plant materials are discussed in terms for designing a playground layout.

Child Development Centers (CDC): The CDC outdoor play area requirements are defined in the DA

Standard Design Package for Child Development Centers and TI 800-01 Design Criteria, Appendix G, Child Development Centers. The CDC accommodate the age groups as defined in paragraph AGE GROUPS. TM 5-663, Child Development Center Play Area Inspection and Maintenance Program, discusses inspection frequency and preventative maintenance requirements to assist with selection of playground equipment.

Use Zones (Clear Area or Fall Zones): Play event use zone perimeters are measured in accordance with the requirements of paragraph CHILD SAFETY AND ACCESSIBILITY STANDARDS and paragraph FALL HEIGHT.

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Play events shall meet the child safety performance requirements described in CPSC Pub No 325 and ASTM F 1487. The requirements include the following: Head and neck entrapment; sharp points, edges, and protrusions; entanglement; pinch, crush, and shear points; suspended hazards; play event access and egress points; play event use zone perimeter; and design criteria. Since ASTM F 1487 criteria is defined for the minimum user through the maximum user (2 through 12 years of age), the requirements for the infant or pre-toddler age group are not prescribed. This specification and Section 02535, "Playground Safety Surfacing" establish the requirements for the infant and pre-toddler age groups.

1.3.2 Child Accessibility

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NOTE: Facilities will be accessible in accordance with TI 800-01 and 36 CFR 1191, Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities. Ensure that elevated play events will reasonably accommodate a user with mobility impairments. One access and egress point for a furnished play event must meet accessibility. Some play events will need to be installed higher to accommodate the transfer system. The maximum equipment height should be reduced to lower the cost of the transfer system. Ensure all children are accommodated on the playground in a 'play for all' socialization skill development environment. When children with disabilities are allowed to choose play events, they are more eager to learn the skills necessary to participate.

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The accessibility requirement in accordance with ASTM F 1487 includes the following: When the play event use zone consists of a protective surfacing rated as unaccessible, at least one accessible route shall be provided from the use zone perimeter to the play event. When there is more than one of the same play activity provided, only one shall meet accessibility requirements (i.e., one swing seat or one spring rocking play event). When the access and egress points are not the same for a play event, an

accessible route shall be provided to both. The accessible route shall access all accessible play events and elements. The protective surfacing performance requirements shall be in accordance with Section 02535, "Playground Safety Surfacing."

1.2 SUBMITTALS

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NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item is required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Recommended codes for Army projects are "RE" for Resident Engineer approval, "ED" for Engineering approval, and "AE" for Architect-Engineer approval. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

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Submit the following in accordance with the section entitled "Submittal Procedures."

SD-01, Data

Playground equipment G

1.4.1.1 Playground equipment

Two bound copies of product data, catalog cuts, photo brochures, specifications, installation procedures, fall zone areas and fall heights, (including diagrams, instructions, scale models) or other printed information in sufficient detail and scope to verify compliance with requirements of the contract documents.

1.4.2 SD-04, Drawings

a. Playground Equipment

1.4.2.1 Playground Equipment

Drawings showing scaled details of proposed playground equipment, including equipment layout, platform heights, protective barriers, play events and use zones, in relationship to the playground design. If size and/or configuration of the playground equipment is different than shown on the drawings, shop drawings shall be provided to illustrate how the playground layout will be modified to accommodate different size equipment. The new layout shall identify modifications to all play area components such as, use zones, paths, planters and vegetation.

1.4.3 SD-08, Statements

a. Successful service G

1.4.3.1 Successful Service Statement

A listing of at least ten installations where units similar to those proposed for use have been installed and have been in successful service for a minimum period of 5 years. This list shall include owner or purchaser; address of installation; service or maintenance organization; date of installation; and contact person and phone number.

1.4.4 SD-13, Certificates

a. Certificate of Insurance G

1.4.4.1 Certificate of Insurance

A Certificate of Insurance, shall be provided by the manufacturer, covering both product and general liability, of not less than 2,000,000,000 Italian Lire. The issuing underwriter shall be AA rated.

1.4.5 SD-14, Samples

a. Color selections and finishes G

1.4.5.1 Color Selections and Finishes

Color Selections and Finishes: Two copies of color charts displaying manufacturer's color selections and finishes, and identifying those colors and finishes proposed for use. Final selection of the color shall be made by the Contracting Officer within 15 days of the sample submittal receipt.

1.4.6 SD-18, Records

a. Warranty G

1.4.7 SD-19, Operation and maintenance Manuals

a. Procedures and Instructions, Data Package 1 G

1.4.7.1 Playground Equipment

Two (2) bound copies of procedure and instructions pertaining to frequency of preventive maintenance, inspection, adjustment, lubrication, and cleaning necessary to minimize corrective maintenance and repair. A list of all parts and components for the system, by manufacturer's name, part number, and nomenclature, shall be attached.

1.5 DELIVERY, STORAGE, AND HANDLING

Equipment shall be delivered and stored in accordance with the manufacturer's recommendations.

1.6 EQUIPMENT IDENTIFICATION

Playground equipment shall be identified with attached and durable label stating the age-group that the equipment is designed to accommodate. There shall be permanent WARNING labels and manufacturer's identification labels, ASTM F 1487.

1.6 WARRANTY

Provide a minimum of ten (10) years warranty on all main structural components of the playground equipment against structural failure, corrosion deterioration or workmanship including posts, decks, rails, loops and rungs. Provide a five (5) year minimum warranty on plastic components against structural failure.

1.11 INSTALLER QUALIFICATION

The installer shall be certified by the manufacturer for training and experience installing the play events and equipment.

1.7 ACCEPTABLE MANUFACTURERS

1.7.1 Manufacturers

The following manufacturers provide an acceptable level of quality and generally meet the provisions of this specification. Manufacturers as listed shall provide site furnishings complying with specifications and/or drawings as shown.

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NOTE: Provide manufacturer names which meet your specific job and specification requirements.

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Giochisport - Landscape Structures
20053 Mugio (Milano)
Via Giacosa, 3 Italy

Tel.: 039-733-690
FAX: 011-3939-733-690

Sarba-Iron Mntn. Forge
Via Strada Statale Romana
Nord, 40-41010
Fossoli, Italy (MO)
Tel.: 3959/660614
FAX: 3959/669166

McGlasson GMBH-Gametime
Benzweg 3
64293 Darmstadt
Germany
Tel.: 49-6151-86095
FAX: 49-6151-84692

PART 2 PRODUCTS

2.1 STANDARD PRODUCTS

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of such products and shall essentially duplicate items that have been in satisfactory use for at least five (5) years prior to bid opening. **All the playground equipment shall be provided by one manufacture.** Combinations of different manufactures is not acceptable. Equivalent materials, products, or equipment may be provided only if approved in writing by the Contracting Officer in accordance with the requirements specified.

2.2 PLAY EQUIPMENT

Play equipment shall conform to manufacturer's installation details. The manufacturer shall increase sizes and quantities and add additional components or increase the size of the play area as required to make their equipment conform with with their minimum requirements. The manufacturer shall supply a complete play system including the minimum components. Use of additional components is allowable at no cost to the government. Provide all safety panels and associated accessories as required for structural stability, child safety and to prevent vandalism and theft of equipment or components of the play system.

2.2.1 Metals

Metal components shall have factory drilled holes. Extra holes that will not be filled by hardware and could harbor insects shall not be present. The components shall be free of excess weld and spatter.

2.2.2 Steel

Steel components shall comply with ASTM A 135, ASTM A 500, or ASTM A 513. Minimum tensile strength shall be 390 N/mm2. Minimum yield point shall be 350 N/mm2.

2.2.2.1 Decks and Steps

Provide stainless steel or pressed steel decks and steps with Polyvinylchloride coating with 6.5 mm perforations to allow for drainage. The deck surface shall be one (1) piece and designed to provide an anti-slip surface. The decks shall be flush with the outside edge of the support posts. Provide a minimum of 13 gauge sheet metal conforming to ASTM A 569/A 569M and reinforced to insure structural integrity of the steel deck.

2.2.2.2 Posts

Provide galvanized steel posts for play equipment at a minimum of 125 mm outside diameter except where indicated otherwise for swings, talk tubes, etc. The posts shall have a minimum wall thickness of 3 mm. All posts shall be a minimum of 1050 mm above deck heights or higher as required to support adjacent equipment or associated fittings. All posts shall be provided with tamper resistant post caps. Galvanized steel posts shall be polyester powder coated as specified.

2.2.3 Rails, Loops, and Handlebars

Rails, loops, and hand-bars shall be 28 mm steel tubing with 3 mm wall thickness. Polyvinyl-chloride coating shall be provided as specified.

2.2.3 Aluminum

Aluminum components shall be type 6061-T6 or 6062-T6 and shall conform to ASTM B 221 and FS QQ-A-200/8. Minimum tensile strength shall be 268,710 kPA. Minimum yield shall be 251,485 kPA.

2.2.5 Plastic

2.2.5.1 Poly Sides and Wall Panels

Shall be of double wall construction, rotationally molded and shall be supplied with associated fittings and accessories as per manufacturer. Plastic panels and components shall be molded of ultraviolet (UV) stabilized polyethylene with minimum wall thickness of 6.5 mm, or as required to meet ASTM F 1487 load tests. Minimum radius at all edges shall be 6.5 mm.

2.2.6 Hardware

Hardware shall be stainless steel in accordance with ASTM A 153. Hardware shall be tamper resistant design and be designed to prevent protrusion injuries. Clamps shall be die cast or constructed from other approved methods. Clamp systems shall be provided with tamper resistant fittings and shall contain ultimate tensile strength of 310,050 kPA, yield strength of 172,250 kPA, shear strength of 199,810 kPA, endurance limit of 137,800 kPA and elongation of 8 percent in 50 mm.

2.2.7 Coatings

2.2.7.1 Galvanized Coating

Metal components shall be hot-dipped in zinc after fabrication in accordance with ASTM A 385. Tailings and sharp protrusions formed as a result of the hot-dip process shall be removed and edges burnished.

2.2.7.2 Polyester Powder Coating

All metal components to be powder-coated shall be free of excess weld and splatter. Parts shall be thoroughly cleaned in a phosphatizing bath and sealed with a non-chrome seal for corrosion resistance, and thoroughly dried. Metal components to be powder-coated shall receive an electrostatic zinc coating prior to painting. Powder coating shall be electrostatically applied and oven cured a minimum of 3 mils thick. Polyester powder shall be in accordance with ASTM D 3359 for adhesion, ASTM D 1735 for flexibility, ASTM D 3363 for hardness, ASTM D 2794 for impact, ASTM D 2454 for overbake resistance, ASTM B 117 for salt spray resistance, and ASTM D 822 for weatherability. The quality control method shall employ checkered adhesion test daily and salt spray test (500-700 hours) monthly.

2.2.7.3 Polyvinyl-Chloride (PVC) Coating

Metal components to receive PVC coating shall be primed with a clear acrylic thermosetting solution. The primed parts shall be preheated prior to dipping. The liquid polyvinyl chloride shall be UV stabilized and mold-resistant. The coated parts shall be cured. The coating shall be at least 2 mm thick plus or minus 0.5 mm and shall have an 85 durometer hardness in accordance with ASTM D 3363, with a slip-resistant finish.

2.2.8 Color

All metal componenets shall be galvanized. Posts shall be polyester powder coated. Metal platforms shall be coated with polyvinyl-chloride. Color of playground equipment components shall be selected by the Contracting Officer upon receipt of color sample submittal items. A minimum of five (5) color selections should be provided.

2.3 EQUIPMENT

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NOTE: Ensure the play events selected are age-appropriate for the age group designated to use them.

Playground Areas Other Than Child Development Centers (CDC): CPSC Pub No 325 and ASTM F 1487 both describe the requirements for children from the toddler through pre-teen age group (2 through 12 years of age). Consult TM 5-803-11, Children's Outdoor Play Areas, for guidance concerning children in the infant through pre-toddler age groups (less than 12 months through 2 years of age).

Child Development Centers (CDC): The CDC program accommodates children from 6 weeks through 8 years of age. The CDC outdoor play area requirements for these age groups are defined in the DA Standard Design Package for Child Development Centers and TI 800-01 Design Criteria, Appendix G, Child Development Centers. TM 5-663, Child Development Center Play Area Inspection and Maintenance Program, discusses inspection frequency and preventative maintenance requirements may assist with the selection of playground equipment.

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2.3.1 Playground Equipment

Provide playground equipment to match function, type, use number of play events and layout of indicated equipment. Increased area and thickness of safety surfacing materials caused by the differences in required fall height or fall zone shall be the responsibility of the Contractor at no additional cost to the Government.

2.2.1 Configuration

Play event configuration, platform height, fall height, and maximum equipment height shall be [as indicated] [_____]. When the configuration varies from the play event shown, shop drawings defining the configuration shall be provided to include the following: equipment layout with the use zone perimeter; designated play surface spot elevations; maximum equipment height spot elevations; platform spot elevations; protective barriers; guardrails; bare or painted metal platform and slide bed orientation; and play events in relationship to the playground layout.

2.2.2 Substitution

Substitutions will not be allowed and play events will not be selected without written approval from the technical representative. Manufacturer substitutions which increase the play event platform height or maximum equipment height shall be evaluated. The increased height requires additional protective surfacing in accordance with paragraph FALL HEIGHT.

2.2.3 Platform Height

Platform height is used to define the age group for age appropriate play events and composite structures. To be age appropriate, the platform height shall meet the finished elevations of the age groups in the following paragraphs. For some play events platform height and paragraph FALL HEIGHT are the same.

2.2.3.1 Pre-Toddler Age Group

Platforms designed for children 12 through 24 months of age shall have a finished elevation a maximum 900 mm 36 inches above the finished elevation of the protective surfacing.

2.2.3.2 Toddler Age Group

Platforms designed for children 2 through 3 years of age shall have a finished elevation a maximum 1200 mm 48 inches above the finished elevation of the protective surfacing.

2.2.3.3 Pre-School Age Group

Platforms designed for children 3 through 5 years of age shall have a finished elevation a maximum 1200 mm 48 inches above the finished elevation of the protective surfacing.

2.2.3.4 School-Age Age Group

Platforms designed for children 5 through 8 years of age shall have a finished elevation a maximum 1800 mm 72 inches above the finished elevation of the protective surfacing.

2.2.3.5 Pre-Teen Age Group

Platforms designed for children 8 through 12 years of age shall have a finished elevation a maximum 1800 mm 72 inches above the finished elevation of the protective surfacing.

2.3.2 List of Playground Equipment

Following is a list of types of playground equipment for each play area which generally meets the provisions of this specification Quantities specified are provided for general information only. Exact quantities of equipment pieces shall be obtained form the drawings. The following list is of major components only. Contractor shall provide all associated supports, framing, posts, and hardware needed for installation of the playground equipment, as per manufacturer's recommendations. [Model numbers provided are for informational purposes and are based on the 1998 Landscape Structures catalog.]

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NOTE: Provide list of manufacturer's model numbers for proposed design indicated on the drawing. For generic specification, ensure more than one manufacture makes similar type equipment componenets. Maybe able to justify proprietary equipment based availability of equipment for specific age group. There are a limited number of manufacturer's for children's playground equipment for 2 year and younger age group. Contact LANTDIV landscape architect for information, Mr. John Blackburn, (757) 322-4380.

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[1. One (1) Play Booster play structure Model #9708 by Landscape Structures with Permaline Rocket Shaped Roof. Submit color samples for approval. (Airstrip Play Area) Delete bridge/ramp and add space travel panel. Provide with round posts.

2. One (1) Play Booster play structure Model #9712 by Landscape structures with recycled peak roof. (Dino Play Area) Submit color samples for approval.

3. One (1) Dino Climber Model #100122 by Landscape Structures with galvanized uprights. Submit color samples for approval.

4. One (1) T-Rex TuffRider Model #100124A by Landscape Structures or equal.

5. One (1) Rhino-Dino TuffRider Model #100123A by Landscape Structures or equal.

6. One (1) Motorcycle TuffRider Model #100013A by Landscape Structures or equal.

7. One (1) Car TuffRider Model #100017A by Landscape Structures or equal.

8. One (1) Two (2) Seat Airplane Ride Model #120871A by Landscape Structures or equal.

9. Five (5) Spring Pods Model #120876A by Landscape Structures or equal.

10. Two (2) Bike Loop Rack Model #100102A-M by Landscape Structures or equal. Provide custom color and length as per drawings.

11. One (1) Arch Belt Swing Model #100050B by Landscape Structures or equal.

12. One (1) Periscope Panel Model #118429A by Landscape Structures or equal.

13. One (1) Turtle Sand Table Model #100122 by Landscape Structures or equal.

14. One (1) Spring Seesaw Model #100032A by Landscape Structures or equal.

15. One (1) Galaxy Play Model #120414A by Landscape Structures or equal. Submit color samples for approval.

16. One (1) Infant Clubhouse Model #100121C by Landscape Structures or equal. Provide with triangular poly roof.

17. One (1) Airplane Play Event #116963A by Landscape Structures or equal.

18. One (1) Infant Swing Model #117962B by Landscape Structures or equal.

19. Two (2) Drop Shot Model #100042 by Landscape Structures or equal.

20. One (1) Spring Ring Model #117961 by Landscape Structures or equal.

21. One (1) Bumper Ball Model #117964A by Landscape Structures or equal.

22. One (1) Stand Up Spinner Model #117959A by Landscape Structures or equal.

23. One (1) Talk Tube Model #113931A by Landscape Structures or equal.

24. Nine (9) Benches #111640H,240 mm bench by Landscape Structures or equal.

25. Tuff Timbers and Stakes. 119214A and 100626A by Landscape Structures or equal.]

2.3.3 [Miscellaneous Play Equipment

1. Round Natural Seating Boulders, 60 cm x 80 cm x 60 cm. Grey to tan color, supplier as approved by Landscape Architect.

2. Play Sand: Bagged and washed course. White/tan play sand. Supplier as approved by Landscape Architect.]

2.4 CONCRETE

Provide concrete in accordance with Section 03300, "Cast-in-Place Concrete."

PART 3 EXECUTION

3.1 PREPARATION

Prior to the start of excavation, the Contractor shall lay out the entire play area and stake the location of all elements, including playground equipment, use/safety zones pathways, and playground safety surfacing based on actual equipment to be installed. The Contracting Officer reserves the right to adjust the equipment locations and other elements to meet field conditions and use zone safety performance requirements.

3.1.2 Layout

The layout of the entire outdoor play area shall be staked before excavation begins to include the following: all play event configuration access and egress points; use zone perimeters; hard surface areas and pathway widths; exterior plant material and planters; walls and fences; and structures. Sufficient space shall be provided between all adjacent play events and individual play events for play activities and circulation. Moving and rotating play events shall be located away from circulation to prevent collisions.

3.1.2.1 Use Zone

The use zone is defined as the area beneath and immediately adjacent to a play structure or equipment that is designated for unrestricted circulation around equipment; and on whose surface it is predicted that a user would

land when falling from or exiting the equipment, (paragraph CHILD SAFETY AND ACCESSIBILITY STANDARDS). Also, the use zone is associated with the following terms; "Clear Area," and "Fall Zone". The use zone shall be free of hard surfaces, objects or obstacles that a child could run into or fall on top of and be injured. The use zone shall consist of protective surfacing in accordance with the requirements of Section 02535, "Playground Safety Surfacing." Use zone perimeters shall not overlap hard surfaces. The use zone perimeter shall meet or exceed the requirements of paragraph CHILD SAFETY AND ACCESSIBILITY STANDARDS. Use zone perimeters shall not overlap except for certain play events as defined in ASTM F 1487.

3.1.2.3 Shop Drawings

When the use zone perimeter and play event configuration conflict with the requirements and paragraph CHILD SAFETY AND ACCESSIBILITY STANDARDS, shop drawings defining corrective measures shall be submitted to include the following: Adjustment to the play event with the use zone perimeter; use zone perimeter overlaps; hard surface area and pathway widths; structures; exterior plant material and planters; walls and fences; and bare or painted metal platform and slide bed orientation to the direct sun.

3.1.3 Orientation

Play events that require orientation to adjacent play events or to meet visibility requirements shall be properly oriented.

3.1.4 Obstructions Below Ground

When obstructions below ground affect the work, shop drawings showing proposed adjustments shall be submitted for approval.

3.2 INSTALLATION

Playground equipment shall be assembled and installed as per manufacturer's installation specifications and approved shop drawings. All clamps and connections shall be double checked for tightness and structural integrity. All loose or non-structural connections shall be rebuilt at the direction of the Contracting Officer.

3.2.10 Fall Height

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NOTE: To assist manufacturers in providing the required depth of protective surfacing, the fall height and the maximum equipment height dimensions and spot elevations for each play event must be shown on the drawings.

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3.2.10.1 General

The fall height is defined as the vertical distance between the finished elevation of the designated play surface and the finished elevation of the protective surfacing beneath it. For some play events the fall height and

paragraph PLATFORM HEIGHT are the same. For some play events the fall height and maximum equipment height are the same. When the furnished play event fall height varies from the play event shown, shop drawings defining the revised depth or type of protective surfacing to meet or exceed the requirements of Section 02535, "Playground Safety Surfacing" shall be provided.

3.2.10.2 Measuring Fall Height

EQUIPMENT	MEASURING FALL HEIGHT
Composite Structure:	For a platform surrounded by protective barriers, measure from the platform finished elevation. For a platform surrounded by guardrails, measure from the guardrail top elevation.
Infant Crawl Area:	A maximum 600 mm height, measured from the crawl wall or barrier finished elevation.
Playhouse, Nonclimbable:	Measure from the designated play surface finished elevation.
Spring Rocking Equipment:	Measure from the seat top elevation.
Stationary Equipment, Climbable:	Measure from the maximum equipment height finished elevation.
Stationary Equipment, Nonclimbable:	Measure from the designated play surface finished elevation.
Swing:	Measure from the bottom of the pivot point.

EQUIPMENT	MEASURING FALL HEIGHT
Composite Structure:	For a platform surrounded by protective barriers, measure from the platform finished elevation. For a platform surrounded by guardrails, measure from the guardrail top elevation.
Infant Crawl Area:	A maximum 24 inch height, measured from the crawl wall or barrier finished elevation.

EQUIPMENT	MEASURING FALL HEIGHT
Playhouse, Nonclimbable:	Measure from the designated play surface finished elevation.
Spring Rocking Equipment:	Measure from the seat top elevation.
Stationary Equipment, Climbable:	Measure from the maximum equipment height finished elevation.
Stationary Equipment, Nonclimbable:	Measure from the designated play surface finished elevation.
Swing:	Measure from the bottom of the pivot point.

3.3 FOOTINGS

Coordinate depths of footings with the heights of all finished surfaces. All footings shall meet or exceed minimum installation standards as provided by the equipment manufacturer.

3.2.4 Footing Elevation

The top elevation of play event footings will be installed at the subbase of the protective surfacing.

3.4 SIGNAGE

For playground areas other than Child Development Centers, durable permanent signage shall be provided to identify the age group the equipment is designed to accommodate. Signage shall be in accordance with Section 10430 EXTERIOR SIGNAGE.

3.4 PREVENTATIVE MAINTENANACE KIT

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NOTE: Provide job specific requirements for spare parts and preventative maintenance kits.
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Provide a preventative maintenance kit for all play areas including spare parts, spare parts lists, graffiti remover, primer, sandpaper, touchup paint to match the colors of the structure. [Spare parts shall include minimum of two (2) standard clamps and six (6) of each commonly used bolts and nut assemblies and any special tools necessary for play equipment adjustment. Touch up paint shall be in unopened and unused cans. Provide a minimum of one (1) can per rail and and post colors.] Along with the preventative maintenance kit provide an Inspection and Maintenance Plan identifying the frequency and procedure for inspecting each piece of equipment.

3.5 CLEANING

Upon completion of installation, remove any masking or protection material from metals. Remove any concrete smears or dirt from finished surfaces. Miscellaneous packing materials and debris shall be removed.

-- End of Section --